DHCP-relay Snooping Configuration Commands

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Chapter 1 DHCP-relay Snooping Configuration Commands

The DHCP-relay snooping configuration commands include:

- ip dhcp-relay snooping
- ip dhcp-relay snooping vlan
- ip dhcp-relay snooping database-agent
- ip dhcp-relay snooping db-file
- ip verify source vlan
- ip arp inspection vlan
- ip source binding
- arp inspection trust
- dhcp snooping trust
- ip-source trust
- show ip dhcp-relay snooping
- show ip dhcp-relay snooping binding
- debug ip dhcp-relay snooping
- debug ip dhcp-relay event
- debug ip dhcp-relay binding

1.1.1 ip dhcp-relay snooping

Syntax

To enable or disable the DHCP-relay snooping function in a VLAN, run ip dhcp-relay snooping. To resume the corresponding default settings, run no dhcp-relay snooping.

ip dhcp-relay snooping

no ip dhcp-relay snooping

Parameters

None

Default Value

The dhcp-relay snooping function is disabled by default.

Usage Guidelines

None

Command Mode

Global configuration mode

Example

The following example shows how to enable the DHCP snooping function:

Switch_config#ip dhcp-relay snooping Switch_config#

1.1.2 ip dhcp-relay snooping vlan

Syntax

To configure VLAN of DHCP snooping, run the following command:

ip dhcp-relay snooping vlan vlan_id

To return to the default setting, use the no form of this command.

no ip dhcp-relay snooping vlan vlan_id

Parameters

Parameters	Description
vlan_id	Stands for the ID of a VLAN. Value range: 1-4094

Default Value

None

Command Mode

Global configuration mode

Usage Guidelines

This command is used to configure the VLAN of DHCP snooping.

Example

The following example shows how to enable snooping detection for DHCP packets on VLAN 2.

Switch_config#ip dhcp-relay snooping vlan 2 Switch_config#

1.1.3 ip dhcp-relay snooping vlan vlan_id max-client

Syntax

To configure the maxim user number under VLAN of DHCP snooping, run the following command.

ip dhcp-relay snooping vlan vlan_id max-client number

To return to the default setting, use the no form of this command.

no ip dhcp-relay snooping vlan vlan_id max-client

Parameters

Parameters	Description
vlan_id	Stands for the ID of a VLAN. Value range: 1-4094
number	Allowable maximum number of users: 0-65535

Default Value

The default maximum number of users is 65536.

Command Mode

Global configuration mode

Usage Guidelines

You can use this command to set the maximum users in a VLNA of DHCP snooping. During this settings, the principle "first come and first be distributed" will be followed. When the number of users in the VLAN reaches the maximum value, new clients are then forbidden to distribute.

The following example shows that snooping check will be conducted towards the DHCP packets in VLAN2 and the allowable maximum number of users is 3.

Switch_config#ip dhcp-relay snooping vlan 2 max-client 3

1.1.4 ip dhcp-relay snooping database-agent

Syntax

To bind DHCP snooping to standby TFTP server, run ip dhcp-relay snooping database-agent A.B.C.D.

ip dhcp-relay snooping database-agent A.B.C.D

no ip dhcp-relay snooping database-agent A.B.C.D

Parameters

Parameters	Description
A.B.C.D	Means the IP address of the TFTP server.

Default Value

There is no standby servers by default.

Command Mode

Global configuration mode

Usage Guidelines

If the address of the TFTP server is not configured, the binding backup is not conducted.

Example

The following example shows how to set the address of a server of backing up DHCP snooping binding to 192.168.1.1.

Switch config#ip dhcp-relay snooping database-agent 192.168.1.1

1.1.5 ip dhcp-relay snooping db-file

Syntax

To configure the file name of the bind backup, run the following command:

ip dhcp-relay snooping db-file name [timestamp]

To return to the default setting, use the no form of this command.

no ip dhcp-relay snooping db-file [timestamp]

Parameters

Parameters	Description
Name	File name which is saved during DHCP snooping binding backup.
timestamp	Timestamp which is the file name of the binding backup.

Default Value

There is no file.

Command Mode

Global configuration mode

Usage Guidelines

If the file name is not configured, the binding backup is not conducted.

Example

The following example shows how to set the file name of binding backup to dhcp_binding.txt.

Switch_config#ip dhcp-relay snooping db-file dhcp_binding.txt

1.1.6 ip dhcp-relay snooping write-time

Syntax

To configure the time interval of backup binding, run the following command:

ip dhcp-relay snooping write-time num

To return to the default setting, use the no form of this command.

ip dhcp-relay snooping write-time

Parameters

Parameters	Description
Num	Stands for the interval of backing up the DHCP snooping binding (2-1440).

Default Value

The default value of the interval is 30 minutes.

Command Mode

Global configuration mode

Usage Guidelines

The binding update will be checked during interval configuration. If the binding is updated, the binding information need be backed up.

Example

The following example shows how to set the interval of backing up the binding to 60 minutes.

Switch_config#ip dhcp-relay snooping write-time 60 Switch_config#

1.1.7 ip dhcp-relay snooping write-immediately

Syntax

After configuring the entry update, backup the binding table immediately, run the following command:

ip dhcp-relay snooping write-immediately

To return to the default setting, use the no form of this command.

no ip dhcp-relay snooping write-immediately

Parameters

None

	Differ relay Shooping Configuration Confinance
	Default Value
	None
	Command Mode
	Global configuration mode
	Usage Guidelines
	If there is entry update, it will write into the entry database immediately. It is recommended that the function is not enabled when there is plenty of entries. Otherwise, the performance may be affected.
	Example
	The following example shows how to backup the binding entry after the configuration is updated.
	Switch_config#ip dhcp-relay snooping write-immediately
1.1.8	ip dhcp-relay snooping log
	Syntax
	To enable log of dhcp snooping, run the following command:
	ip dhcp-relay snooping log
	To return to the default setting, use the no form of this command.
	no ip dhcp-relay snooping log
	Parameters
	None
	Command Mode
	Global configuration mode

Default Value

None

Usage Guidelines

After the log function is enabled, the syslog will report if there is packets of dhcp server on non-trust port, which indicates that there is illegal dhcp server on the port reporting syslog.

Example

The following example shows how to enable the DHCP-relay snooping function:

Switch_config#ip dhcp-relay snooping log

1.1.9 ip dhcp-relay snooping rapid-refresh-bind

Syntax

To enable rapid update of DHCP snooping, run ip dhcp-relay snooping rapid-refresh-bind. To return to the default setting, use the no form of this command.

ip dhcp-relay snooping rapid-refresh-bind

no ip dhcp-relay snooping rapid-refresh-bind

Parameters

None

Default Value

None

Command Mode

Global configuration mode+

Usage Guidelines

After this function is enabled, the DHCP attack of fake MAC will be closed; when the client is allowed to change the access port, the IP address can be directly acquired without waiting for the expiration of the IP lease.

If the client change the access port after the function is disabled, the device enabling snooping will take it as dhop packet attack of fake mac and the dhop packet will be dropped.

The following example shows how to enable dhcp snooping fast update entry.

Switch_config# ip dhcp-relay snooping rapid-refresh-bind

1.1.10 dhcp-relay snooping information option

Syntax

To configure the way of entering option82, run the following command:

ip dhcp-relay snooping information option format { snmp-ifindex | manual |
hn-type [host] | cm-type }

To return to the default setting, use the no form of this command.

no ip dhcp-relay snooping information option format { snmp-ifindex | manual | hn-type [host] | cm-type }

Parameters

Parameters	Description
format snmp-ifindex	Fills in option 82 in SNMP ifindex mode (optional).
format manual	Uses the manual configuration to fill in option82 (optional).
format hn-type [host]	Uses the Cisco format to enter option82 (optional).
	Host means the configuration device is the master device.
format cm-type	Enables enter option82 in the format of cm-type (optional)

Default Value

Option 82 will not be added to or removed from the report by default.

Command Mode

Global configuration mode

Usage Guidelines

This command is used to set whether DHCP option82 can be handled when a switch is conducting DHCP snooping. If format snmp-ifindex is specified, you should use SNMP ifindex to fill in option82; if format manual is specified, you should use the character string, which is set by the command "dhcp snooping information circuit-id string" on all ports, to fill in the circuit-id option of option82; if specifying format cm-type, filling in option82 in the way of option82; in other cases, fill in option82 according to the rules of RFC3046.

The following example shows how to fill in option 82 in SNMP ifindex mode.

Switch_config#ip dhcp-relay snooping

Switch_config#ip dhcp-relay snooping information option format snmp-ifindex

The following example shows how to fill in option 82 in manual mode.

Switch_config#ip dhcp-relay snooping

Switch_config#ip dhcp-relay snooping vlan [WORD] //[WORD] stands for the vlan name for start up the snooping function.

Switch_config# ip dhcp-relay snooping information option format manual

1.1.11 ip verify source vlan

Syntax

To configure VLAN of IP source address monitored, run the following command:

ip verify source vlan vlanid

To return to the default setting, use the no form of this command.

no ip verify source vlan vlanid

Parameters

Parameters	Description
vlan id	Stands for the ID of a VLAN. Value range: 1-4094

Default Value

None

Command Mode

Global configuration mode

Usage Guidelines

This command is used to configure a VLAN for monitoring the source IP address. The "no" form of this command is used to cancel this VLAN. If the source IP address and source MAC address of the IP packet is not the client's legal address, which is distributed by the DHCP server and listened by DHCP snooping, the vlan in which IP source address will take the kind of packets as illegal ones and drop them.

The following example shows how to conduct source IP address monitoring to the packets from all physical interfaces (except trusted interfaces) in VLAN2.

Switch config#ip verify source vlan 2

1.1.12 ip arp inspection vlan

Syntax

To configure the VLAN which ARP packet source address monitored, run the following command:

ip arp inspection vlan vlanid

To return to the default setting, use the no form of this command.

no ip arp inspection vlan vlanid

Parameters

Parameters	Description
vlanid	Stands for the ID of a VLAN. Value range: 1-4094

Default Value

None

Command Mode

Global configuration mode

Usage Guidelines

This command is used to configure a VLAN for monitoring the source address of the ARP packet. The "no" form of this command is used to cancel this VLAN. In the VLAN where monitoring the source address of the ARP packets is enabled, if SIP and SMAC of a ARP packet, which correspond to the IP address and MAC address of the client that the DHCP server distributes to the client, are unsuitable, the ARP packet will be dropped.

Example

The following example shows how to conduct source address monitoring to the ARP packets from all physical interfaces (except trusted interfaces) in VLAN2.

Switch_config#ip arp inspection vlan 2

1.1.13 ip source binding

Syntax

To add MAC-to-IP binding to an interface, run ip source binding xx-xx-xx-xx-xx A.B.C.D interface name. To return to the default setting, use the no form of this command.

ip source binding xx-xx-xx-xx-xx A.B.C.D interface name vlan vlan-id no ip source binding xx-xx-xx-xx-xx A.B.C.D vlan vlan-id

Parameters

Parameters	Description
xx-xx-xx-xx-xx	MAC address
A.B.C.D	IP address
Name	Means a name of an interface.
vlan-id	Stands for VLAN ID.

Default Value

None

Command Mode

Global configuration mode

Usage Guidelines

None

Example

The following example shows how to bind MAC address 08-00-3e-00-00-01 to IP address 192.168.1.2 on interface GigaEthernet0/1.

Switch_config#ip source binding 08-00-3e-00-00-01 192.168.1.2 interface GigaEthernet0/1 Switch_config#

1.1.14 arp inspection trust

Syntax

To configure ARP trust port, run the following command:

arp inspection trust

To return to the default setting, use the no form of this command.

no arp inspection trust

Parameters

None

Default Value

The default interface is a distrusted one.

Command Mode

Interface configuration mode

Usage Guidelines

The ARP monitoring is not conducted to the ARP-trusted interface. The "no" form of this command is used to configure the default value of this interface.

Example

The following example shows how to set interface GigaEthernet 0/1 to an ARP-trusted interface.

Switch_config_g0/1#arp inspection trust

1.1.15 dhcp snooping trust

Syntax

To configure DHCP trust port, run the following command:

dhcp snooping trust

To return to the default setting, use the no form of this command.

no dhcp snooping trust

Parameters

None

Default Value

The default interface is a distrusted one.

Command Mode

Interface configuration mode

Usage Guidelines

DHCP snooping is not conducted to the DHCP-trusted interface. The "no" form of this command is used to resume the default value of this interface.

Example

The following example shows how to set interface GigaEthernet 0/1 to a DHCP-trusted interface.

Switch_config_g0/1#dhcp snooping trust

1.1.16 dhcp snooping deny

Syntax

To disable dhcp snooping monitoring, run the following command:

dhcp snooping deny

To return to the default setting, use the no form of this command.

no dhcp snooping deny

Parameters

None

Default Value

Snooping monitoring is allowed on the default interface.

Command Mode

Interface configuration mode

Usage Guidelines

After this command is configured, DHCP snooping trust, IP-source trust and ARP inspection trust are automatically enabled. The "no" form of this command is used to configure the default value of this interface.

Example

The following example shows how to disable DHCP snooping on interface GigaEthernet0/1.

Switch_config_g0/1#dhcp snooping deny

1.1.17 dhcp snooping information circuit-id

Syntax

To configure option82 circuit-id sub-option, run the following command:

dhcp snooping information circuit-id {string [STRING] | hex xx-xx-xx-xx-xx-xx}

To return to the default setting, use the no form of this command.

no dhcp snooping information circuit-id

Parameters

Parameters	Description						
string STRING	Stands for the character string carried by the sub-option of option82 circuit-id.						
hex [xx-xx-xx-xx-xx]	Stands for the hexadecimal character string carried by the sub-option of option82 circuit-id.						

Default Value

None

Command Mode

Interface configuration mode

Usage Guidelines

This command can be set on each port that connects the client. This command is used to configure option82 of the DHCP packet, which is sent by DHCP client to DHCP

server and monitored by DHCP snooping. (the device of manually set optio82 need be opened. See the command, ip dhcp-relay snooping information option format manual)

Example

The following example shows how to set option82 to group1 manually on interface g0/3, which belongs to interface g0/3.

Switch_config#ip dhcp-relay snooping

Switch_config#ip dhcp-relay snooping vlan 1

Switch_config#ip dhcp-relay snooping information option format manual

Switch_config#interface g0/3

Switch config g0/3#dhcp snooping information circuit-id string group1

1.1.18 dhcp snooping information remote-id string

Syntax

To configure the sub-option of Option82 remote-id, run the following command:

dhcp snooping information remote-id {string [STRING] | hex xx-xx-xx-xx-xx-xx}

To return to the default setting, use the no form of this command.

no dhcp snooping information remote-id

Parameters

Parameters	Description				
string STRING	Stands for the character string carried by option82 remote-id.				
hex xx-xx-xx-xx-xx	Stands for the hexadecimal character string carried by the sub-option of option82 remote-id.				

Default Value

None

Command Mode

Interface configuration mode

Usage Guidelines

This command can be set on each port that connects the client. This command is used to configure option82 of the DHCP packet, which is sent by DHCP client to DHCP server and monitored by DHCP snooping. (the switch of manually set optio82 need be opened. See the command, ip dhcp-relay snooping information option format manual)

Example

The following example shows how to set option82 to group1 manually on interface g0/3, which belongs to interface g0/3.

Switch config# ip dhcp-relay snooping

Switch_config# ip dhcp-relay snooping vlan 1

Switch_config#ip dhcp-relay snooping information option format manual

Switch_config#interface g0/3

Switch_config_g0/3# dhcp snooping information remote-id string group1

1.1.19 dhcp snooping information vendor-specific

Syntax

To configure the sub-option of Option82 verdor-specific, run the following command:

dhcp snooping information vendor-specific {string [STRING] | hex xx-xx-xx-xx-xx}

To return to the default setting, use the no form of this command.

no dhcp snooping information vendor-specific

Parameters

Parameters	Description					
string STRING	Stands for the character string carried by option82 verdor-specific.					
hex xx-xx-xx-xx-xx	Stands for the hexadecimal character string carried by the sub-option of option82 verdor-specific.					

Default Value

None

Command Mode

Interface configuration mode

Usage Guidelines

This command can be set on each port that connects the client. This command is used to configure option82 of the DHCP packet, which is sent by DHCP client to DHCP server and monitored by DHCP snooping. (the switch of manually set optio82 need be opened. See the command, ip dhcp-relay snooping information option format manual)

Example

The following example shows how to use the hexadecimal 00-00-00-09-0d-01-0b-78-69-61-6f-6d-69-6e-37-31-31-34 to set option82 option vendor-specific (suboption 9)

Switch config# ip dhcp-relay snooping

Switch_config# ip dhcp-relay snooping vlan 1

Switch_config#ip dhcp-relay snooping information option format manual

Switch config#interface g0/3

Switch_config_g0/3# dhcp snooping information vendor-specific hex 00-00-09-0d-01-0b-78-69-61-6f-6d-69-6e-37-31-34

1.1.20 dhcp snooping information append

Syntax

To enable the append switch of suboption9 in option82, run the following command:

dhcp snooping information append

To add first-subop9-param information of suboption9 in option82, run the following command:

dhcp snooping information append first-subop9-param { hex xx-xx-xx-xx-xx | hostname | vlanip }

To add second-subop9-param information of suboption9 inoption82, run the following command:

dhcp snooping information append second-subop9-param { hex xx-xx-xx-xx-xx | hostname | vlanip }

To disable the append switch of suboption9 in option82, run the following command:

no dhcp snooping information append

To cancel the first-subop9-param append of suboption9 in option82, run the following command:

no dhcp snooping information append first-subop9-param

To cancel the second-subop9-param append of suboption9 in option82, run the following command:

no dhcp snooping information append second-subop9-param

Parameters

Parameters	Description					
first-subop9-param hex [xx-xx-xx-xx-xx]	Stands for the Hex system of the first parameter carried by option82 vendor-specific (suboption9).					
second-subop9-param hex [xx-xx-xx-xx-xx]	Stands for the Hex system of the second parameter carried by option82 vendor-specific (suboption9).					
hostname	Option82 vendor-specific (suboption9) Stands for the parameter of the suboption is the host name					
vlanip	Option82 vendor-specific (suboption9) Stands for the parameter of the suboption is IP of interface vlan					

Default Value

None

Command Mode

Interface configuration mode

Usage Guidelines

This command can be set on each port that connects the client. This command is used to configure option82 of the DHCP packet, which is sent by DHCP client to DHCP server and monitored by DHCP snooping.

This command without parameters acts as a switch command. When append is enabled, the information of this command will be added to suboption9 of option82. The added information is first-subop9-param and second-subop9-param.

Example

The following example shows how to enrich dhcp packets with option82 on interface g0/3 and set suboption 9 added parameter 1 with the hexadecimal 61-62-63-61-62-63.

Switch_config_g0/3# dhcp snooping information append

Switch_config_g0/3#dhcp snooping information append first-subop9-param hex 61-62-63-61-62-63

Here 61-62-63-61-62-63 is the Hex system of the to-be-added parameter.

1.1.21 dhcp snooping information drop

Syntax

To drop dhcp packet with option82, run the following command:

dhcp snooping information drop

To return to the default setting, use the no form of this command.

no dhcp snooping information drop

Parameters

None

Default Value

None

Command Mode

Interface configuration mode

Usage Guidelines

This command can be set on each port that connects the client.

After this command is set, the request packets that contain option82 will be dropped on the stipulated port.

Example

The following example shows how to drop dhcp packets with option82 on g0/3.

Switch_config_g0/3# dhcp snooping information drop

1.1.22 ip-source trust

Syntax

To configure IP source address port trust, run the following command:

ip-source trust

To return to the default setting, use the no form of this command.

no ip-source trust

Parameters

None

Default Value

The default interface is a distrusted one.

Command Mode

Interface configuration mode

Usage Guidelines

Source IP address snooping is not conducted to the source-IP-trusted interface. The "no" form of this command is used to resume the default value of this interface.

Example

The following example shows how to set interface GigaEthernet0/1 to a source-ip-trusted interface.

Switch_config_g0/1#ip-source trust

1.1.23 show ip dhcp-relay snooping

Syntax

To show Dhcp-relay snooping configuration information, run the following command:

show ip dhcp-relay snooping

Parameters
None
Default Value
None
Command Mode
Any mode
Usage Guidelines
This command is used to display the information about DHCP-snooping configuration.
Example
The following example shows how to display the information about DHCP-relay snooping.
Switch_config#show ip dhcp-relay snooping
show ip dhcp-relay snooping binding
Syntax
To show the port binding information of dhcp-relay snooping, run the following command:
show ip dhcp-relay snooping binding [all]
Parameters
None
Default Value
None
Command Mode
Any mode

1.1.24

Usage Guidelines

This command is used to display the binding information about DHCP-relay snooping.

If the all parameter is in the command sentence, all binding information about DHCP-relay snooping will be displayed.

Example

The following example shows how to display the information about DHCP-relay snooping binding.

Switch config#show ip dhcp-relay snooping binding

1.1.25 debug ip dhcp-relay snooping

Syntax

To enable debug switch of Dhcp-relay snooping,run the following command:

debug ip dhcp-relay snooping

To return to the default setting, use the no form of this command.

no debug ip dhcp-relay snooping

Parameters

None

Default Value

None

Command Mode

Privileged mode

Usage Guidelines

This command is used to enable or disable the debugging switch of DHCP-relay snooping.

Example

The following example shows how to enable the debugging switch of DHCP-relay snooping.

Switch#debug ip dhcp-relay snooping Switch#

1.1.26 debug ip dhcp-relay event

Syntax

To enable event debug switch of dhcp-relay, run the following command:

debug ip dhcp-relay event

To return to the default setting, use the no form of this command.

no debug ip dhcp-relay event

Parameters

None

Default Value

None

Command Mode

Privileged mode

Usage Guidelines

This command is used to enable or disable the event debugging switch of DHCP-relay.

Example

The following example shows how to enable the debugging switch of DHCP-relay event.

Switch#debug ip dhcp-relay event Switch#

1.1.27 debug ip dhcp-relay binding

Syntax

To enable binding debug switch of Dhcp-relay snooping, run the following command:

debug ip dhcp-relay binding

no debug ip dhcp-relay binding **Parameters** None **Default Value** None **Command Mode** Privileged mode **Usage Guidelines** This command is used to enable or disable the debugging switch of DHCP-relay snooping binding. Example The following example shows how to enable the debugging switch of DHCP-relay snooping binding. Switch#debug ip dhcp-relay binding debug ip dhcp-relay all **Syntax** To enable the debug switch of all Dhcp-relay, run the following command: debug ip dhcp-relay all To return to the default setting, use the no form of this command. no debug ip dhcp-relay all **Parameters** None

1.1.28

To return to the default setting, use the no form of this command.

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None

Command Mode

Privileged mode

Usage Guidelines

The command can be used to enable/disable the debug switch of all dhcp-relay.

Example

The following example shows how to enable all debug switches of dhcp-relay, run the following command:

Switch# debug ip dhcp-relay all